What Is Claimed Is:

1.   A programmable controller, comprising:

a global network communication interface receiving software function blocks of a control program, the software function blocks being loadable by the programmable controller and capable of being tied to the control program while the control program is being executed by the programmable controller, the control program having a control operation and being processed by the programmable controller at least one of cyclically and via interrupt control; and

a software function block execution system including an exe engine object, a watchdog object, a bootstrap object, and an input/output module object, the software function block execution system storing process image inputs and process image outputs, receiving signal states from process inputs, and sending the signal states to process outputs, the bootstrap object generating software function block objects and the input/output module object before a start of the control operation, wherein if the control program is processed cyclically, the bootstrap object sends to the exe engine object a list the software function block objects to be processed, and wherein if the control program is processed via interrupt control, the bootstrap object sends to the exe engine object a list of the software function block objects to be processed for each of the process inputs, and wherein at the start of the control operation, the bootstrap object starts the exe engine object, the exe engine starting the watchdog object, the watchdog object, resetting the exe engine object when a cycle time is exceeded, the exe engine object cyclically i) updates the process image inputs, ii) if the control program is processed cyclically, processes one processing step of the software function block objects, iii) if the control program is processed via interrupt control, determines changes in the signal states at the process inputs and processes the software function block objects assigned to the process inputs, and iv) updates the process image outputs.

2.　　　The programmable controller according to claim 1, wherein the exe engine object and the watchdog object are threads.

3.　　　The programmable controller according to claim 1, wherein the global network communication interface permits TCP/IP protocol communication.

4.　　　The programmable controller according to claim 1, wherein the software function blocks are Java byte coded, the software function blocks comprising one of i) Java C programming language code, and ii) a programming language code complying with IEC 1131.

5.　　　A programming unit for creating software function blocks of a control program, comprising:

an arrangement for creating object-oriented software function blocks;

a global network communication interface for at least one of i) transmitting the software function blocks to a programmable controller via the global network, and ii) receiving the software function blocks via the global network, the software function blocks being loadable by the programming unit and capable of being tied to the control program while the control program is being executed by the programming unit, the control program having a control operation and being processed by the programming unit at least one of cyclically and via interrupt control; and

a software function block execution system including an exe engine object, a watchdog object, a bootstrap object, and an input/output module object, the software function block execution system storing process image inputs and process image outputs, receiving signal states from process inputs, and sending the signal states to process outputs, the bootstrap object generating software function block objects and the input/output module object before a start of the control operation, wherein if the control program is processed cyclically, the bootstrap object sends to the exe engine object a list of the software function block objects to be

processed, and wherein if the control program is processed via interrupt control, the bootstrap object sends to the exe engine object a list of the software function block objects to be processed for each of the process inputs, and wherein at the start of the control operation, the bootstrap object starts the exe engine object, the exe engine starting the watchdog object, the watchdog object resetting the exe engine object when a cycle time is exceeded, the exe engine object cyclically i) updates the process image inputs, ii) if the control program is processed cyclically, processes one processing step of the software function block objects, iii) if the control program is processed via interrupt control, determines changes in the signal states at the process inputs and processes the software function block objects assigned to the process inputs, and iv) updates the process image outputs.

6.   The programming unit according to claim 5, wherein, the global network communication interface permits TCP/IP protocol communication.

7.   The programming unit according to claim 5, wherein the software function blocks are Java byte coded, the software function blocks comprising one of i) Java C programming language code, and ii) a programming language code complying with IEC 1131.

8.   An automation system, comprising:

at least one programmable controller including:

a global network communication interface receiving software function blocks of a control program, the software function blocks being loadable by the at least one programmable controller and capable of being tied to the control program while the control program is being executed by the at least one programmable controller, the control program having a control operation and being processed by the at least one programmable controller at least one of cyclically and via interrupt control, and

a software function block execution system including an exe engine object, a

watchdog object, a bootstrap object, and an input/output module object, the software function block execution system storing process image inputs and process image outputs, receiving signal states from process inputs, and sending the signal states to process outputs, the bootstrap object generating software function block objects and the input/output module object before a start of the control operation, wherein if the control program is processed cyclically, the bootstrap object sends to the exe engine object sends a list of the software function block objects to be processed, and wherein if the control program is processed via interrupt control, the bootstrap object sends to the exe engine object a list of the software function block objects to be processed for each of the process inputs, and wherein at the start of the control operation, the bootstrap object starts the exe engine object, the exe engine starting the watchdog object, the watchdog object resetting the exe engine object when a cycle time is exceeded, the exe engine object cyclically i) updates the process image inputs, ii) if the control program is processed cyclically, processes one processing step of the software function block objects, iii) if the control program is processed via interrupt control, determines changes in the signal states at the process inputs and processes the software function block objects assigned to the process inputs, and iv) updates the process image outputs; and

at least one operating and monitoring device including an operating and monitoring program, the Operating and monitoring program including operating and monitoring software blocks.

9.   An automation system, comprising:

at least one programming unit including:

an arrangement for creating object-oriented software function blocks;

a global network communication interface for at least one of i) transmitting the software function blocks to a programmable controller via the global network, and ii) receiving the software function blocks via the global network, the software function blocks being loadable by the at least one programming unit and capable of being tied to the control program

while the control program is being executed by the at least one programming unit, the control program having a control operation and being processed by the at least one programming unit at least one of cyclically and via interrupt control, and

a software function block execution system including an exe engine object, a watchdog object, a bootstrap object, and an input/output module object, the software function block execution system storing process image inputs and process image outputs, receiving signal states from process inputs, and sending the signal states to process outputs, the bootstrap object generating software function block objects and the input/output module object before a start of the control operation, wherein if the control program is processed cyclically, the bootstrap object sends to the exe engine object a list of the software function block objects to be processed, and wherein if the control program is processed via interrupt control, the bootstrap object sends to the exe engine object a list of the software function block objects to be processed for each of the process inputs, and wherein at the start of the control operation, the bootstrap object starts the exe engine object, the exe engine starting the watchdog object, the watchdog object resetting the exe engine object when a cycle time is exceeded, the exe engine object cyclically i) updates the process image inputs, ii) if the control program is processed cyclically, processes one processing step of the software function block objects, iii) if the control program is processed via interrupt control, determines changes in the signal states at the process inputs and processes the software function block objects assigned to the process inputs, and iv) updates the process image outputs; and

at least one operating and monitoring device including an operating and monitoring program, the operating and monitoring program including operating and monitoring software blocks.

10. The automation system according to claim 8, further comprising:

at least one of a workstation and a server, the at least one of the workstation and the server including a means for creating and processing the software function blocks.

11.   Thee automation system according to claim 9,

further comprising:

at least one of a workstation and a server, the at least one of the workstation and the

server including a means for creating and processing the software function blocks.

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